CHEMISTRY B.S. with Environmental Chemistry concentration  

**INTRODUCTORY REQUIREMENTS**

**Calculus:**  
MATH 11A (FWS) ___ + 11B (FWS) ___ + 22 (WS) ___  
OR MATH 19A (FWS) ___ + 19B (FWS) ___ + 22 (WS) ___  
OR AMS 15A (*) ___ + 15B (*) ___ + MATH 22 (WS) ___

**General Chemistry:**  
CHEM 1A (FWS) ___ + 1B/M (FWS) ___ + 1C/N (FWS) ___

**Biology:**  
BIOL 20A (FWS) ___ + BIOE 20B (FWS) ___

**Organic Chemistry:**  
CHEM 108A/L (FW) ___ + 108B/M (WS) ___

**Earth & Planetary Sciences:**  
EART 5/L (F) ___ OR EART 10/L (S) ___ OR EART 20/L (S) ___

**Environmental Studies:**  
ENVS 25 (W) ___

**Physics:**  
PHYS 6A/L (FWS) ___ + 6B/M (WS) ___ + 6C/N (FS) ___  
OR PHYS 5A/L (F) ___ + 5B/M (W) ___ + 5C/N (S) ___

**ADVANCED REQUIREMENTS**

**Chemistry:**  
CHEM 103 Biochemistry (FS) ___  
CHEM 122 Principles of Instrumental Analysis (F) ___  
CHEM 151A/L Chemistry of Metals Lab (S) ___  
CHEM 163A Quantum Mechanics & Basic Spectroscopy (F) ___  
CHEM 163B Chemical Thermodynamics (W) ___  
CHEM 164 Physical Chemistry Lab (W) ___

**Earth & Planetary Sciences:**  
EART 110B/M Earth as a Chemical System (W) ___

**Microbiology & Environ. Toxicology:**  
choose ONE...  
METX 101 Sources & Fates of pollutants (F) ___  
METX 102 Cell & Molecular Toxicology (*) ___

**Ocean Sciences:**  
ONE of the following...  
OCEA 120 Aquatic Chemistry: Principles and Applications (*) ___  
OCEA 220 Chemical Oceanography (W) ___

**Advanced Laboratory:**  
ONE of the following...  
CHEM 146A Advanced Laboratory in Organic Chemistry (F) ___  
CHEM 146B Advanced Laboratory in Inorganic Chemistry (S) ___  
CHEM 146C Advanced Laboratory in Physical Chemistry (S) ___

**Note:** Students conducting senior thesis research are required to choose a lab outside of their area of research.

**Disciplinary Communication:**  
CHEM 151L and one of CHEM 146A, B, or C. The DC requirement MUST be taken at UCSC.

**Comprehensive Requirement:**  
Senior Thesis: CHEM 195A (IS) ___ + 195B (IS) ___ + 195C (IS) ___  
OR  
Senior Essay: CHEM 199 (IS) ___  

IS=Independent Study Form